Experience with category 1 caesarean section in a regional centre

M Yilmaz[1], N Yuen[1], J Pitson[1], S Kausar[1]

1. Bendigo Heath, Bendigo, Victoria

Correspondence: myilmaz@bendigohealth.org.au

Excellent Care. Every Person. Every Time.

Introduction

Approximately 30% of all births in Australia occur outside metropolitan services[1]. Timely access to theatre during obstetric emergencies remains a significant challenge in rural and regional settings.

In November 2017 we introduced an "Emergency Caeserean Response Protocol" in our regional health service, adopting the recommended benchmark of a decision to delivery interval (DDI) of 30 minutes[2] for the most urgent cases classed "category 1".

During this period theatre staff were off site Friday to Sunday from 10pm to 8am the next morning.

Methods

- This was a retrospective audit of women who had a category 1 caesarean section between 1st November 2017 to 31st October 2018 at our regional hospital
- A total of 30 charts were audited
- All cases were reviewed in detail at our multidisciplinary Morbidity and Mortality meetings
- Morbidity & Mortality review meeting outcomes reviewed

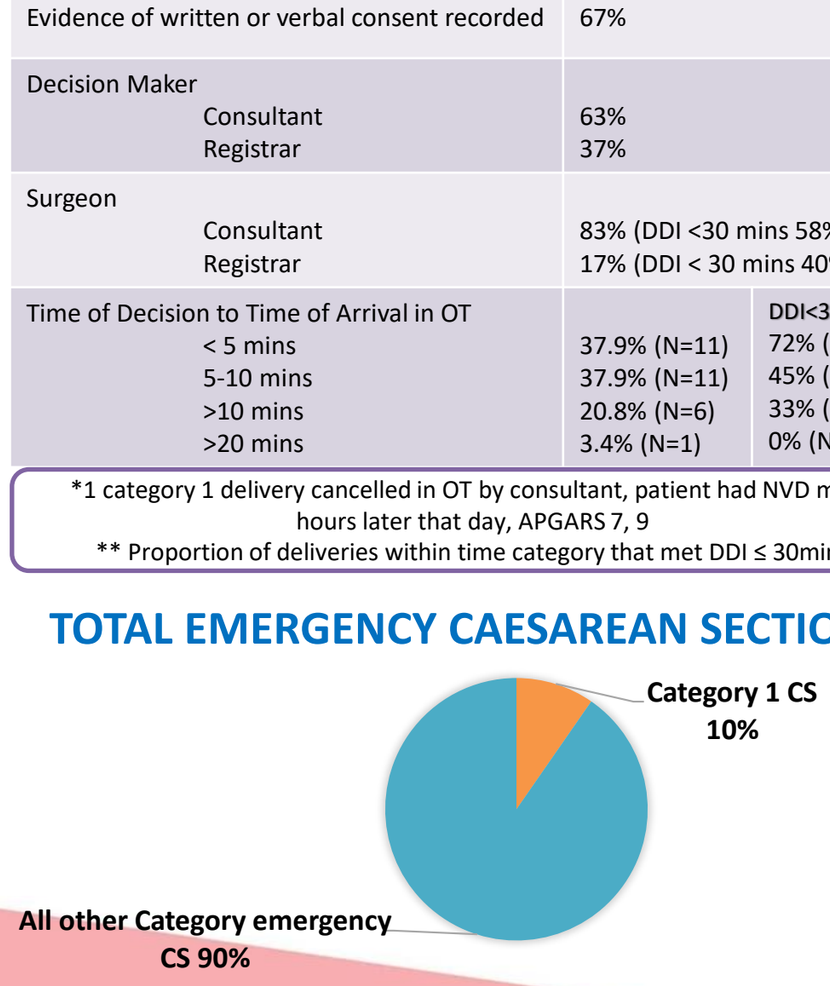
Results

Births 01/11/2017 – 31/10/2018	1513 babies (1497 mothers)	
Elective caesarean sections	16% of all births	
Emergency caesarean sections	17.6% of all births	
Category 1 caesarean section calls	2% of all births (N=30)*	
Indication for category 1 caesarean section met (per retrospective review at M+M)	70% of cases	
Proportion of category 1 caesarean section calls when OT staff off-site	7%	
Evidence of written or verbal consent recorded	67%	
Decision Maker		
Consultant	63%	
Registrar	37%	
Surgeon		
Consultant	83% (DDI <30 mins 58%)	
Registrar	17% (DDI < 30 mins 40%)	
Time of Decision to Time of Arrival in OT		DDI<30mins**
< 5 mins	37.9% (N=11)	72% (N=8)
5-10 mins	37.9% (N=11)	45% (N=5)
>10 mins	20.8% (N=6)	33% (N=2)
>20 mins	3.4% (N=1)	0% (N=0)

*1 category 1 delivery cancelled in OT by consultant, patient had NVD many hours later that day, APGARS 7, 9

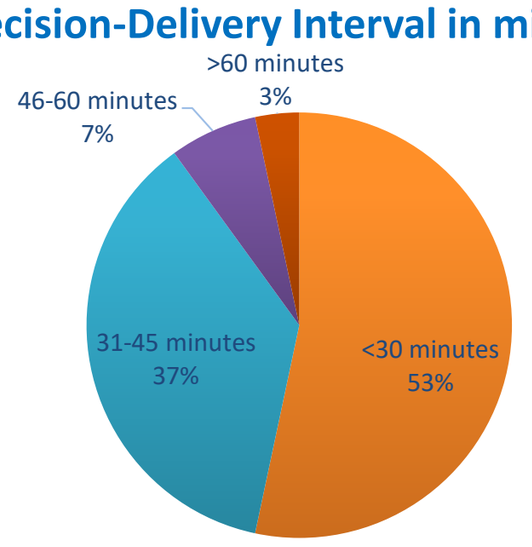
** Proportion of deliveries within time category that met DDI ≤ 30mins

TOTAL EMERGENCY CAESAREAN SECTIONS

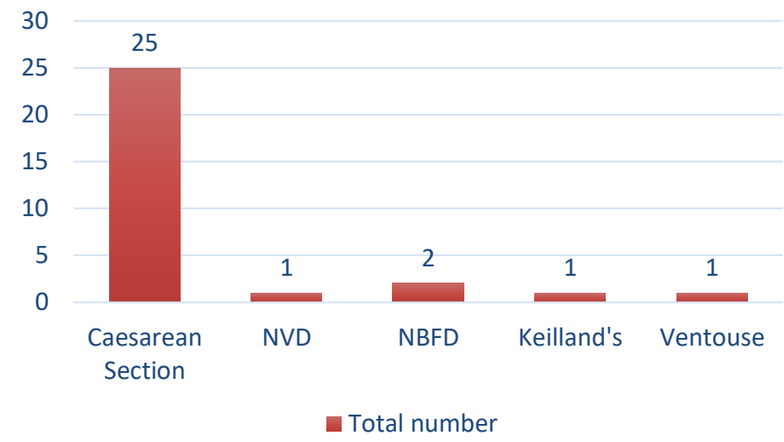


Results

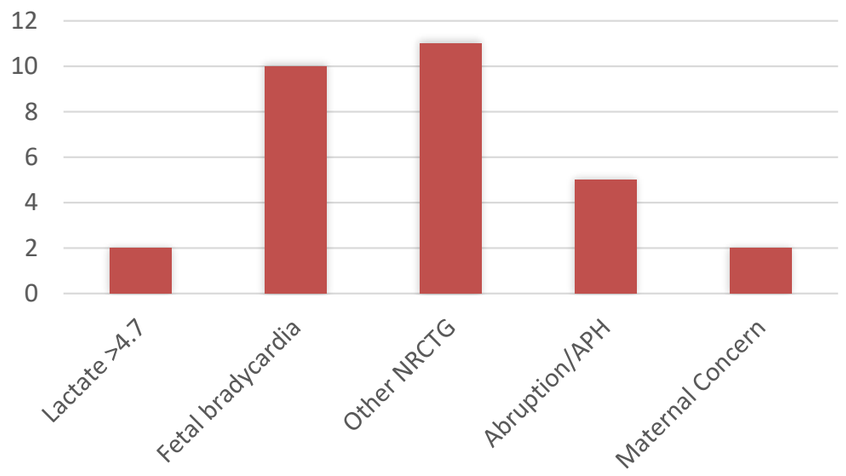
Decision-Delivery Interval in minutes



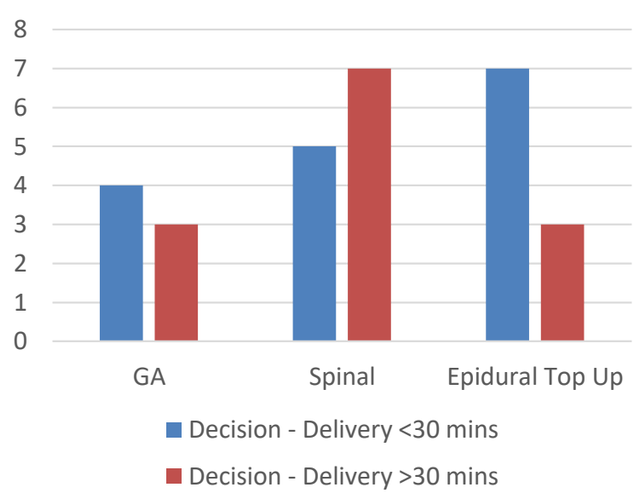
Mode of delivery after category 1 Caeserean Section Call



Indication for Category 1 CS Call

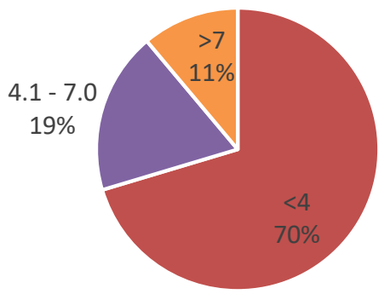


DDI and Anaesthesia Used

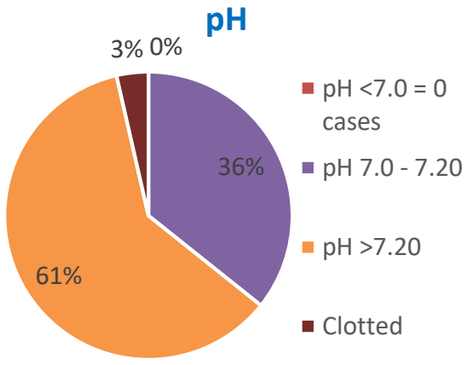


Cord Blood Gases

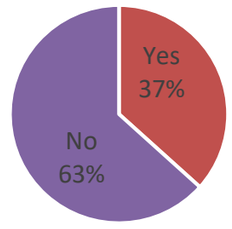
Lactate



pH



Neonatal SCBU Admission



Maternal Outcomes	
Caeserean wound extension	0%
PPH >500ml vaginal delivery, >750ml at caesarean section	28%
PPH > 1.5L	3.5%(N=1)
ICU Admission Postpartum	7%(N=2)

Discussion

An optimal DDI of <30 minutes is widely accepted for the most urgent caesarean sections[2, 3]. An "Emergency Caeserean Response" Protocol was implemented in our health service from November 2nd 2017. A category 1 aiming for DDI < 30 minutes, required "immediate threat to the life of mother or fetus". During the audit period 1 shared emergency operating theatre (OT) staffed 24 hours was available Monday to Thursday (anaesthetic and obstetric consultant off site only). From 2200pm to 0730am Friday, Saturday and Sunday all theatre staff (except obstetric and anaesthetic registrar) were on call and off site.

Transfer to theatre for category 1s was streamlined. When theatre staff were on site only 2 phone calls were required prior to transferring the patient. The first to switchboard, who initiated a communication cascade and the second to notify the theatre nurse in charge that the patient was enroute for category 1 caesarean section. When theatre staff off site, a phone call to switchboard and a call to the after hours hospital manager was required. As soon as theatre staff were present the patient was transported by birth suite staff. The use of porters was eliminated. We achieved DDI <30mins in 53% of cases and <45 minutes in 90%. Of those transferred to theatre within 5 minutes 72% had a DDI <30 mins while this fell to 33% if transfer exceeded 10 minutes.

Unnecessary haste in delivery can introduce risk to mother and baby. A retrospective analysis of the last National Sentinal Caeserean Section Audit in the UK revealed that only 51% of category 1 caesarean sections fulfilled criteria of imminent threat to life.[4] Each category 1 caesarean call placed was retrospectively reviewed at our morbidity and mortality meetings and 30% did not meet criteria. Cord gas results from birth were available for 93% of births. There were no cases of an arterial or venous pH <7 and 3 cases of lactate >7 (11%). Rate of maternal complications was similarly low.

1. *Australian Institute of Health and Welfare "Australian mothers and Babies 2017" (2017, Oct 13). Retrieved March 2019, from Australian mothers and babies 2017 in brief*
2. *RANZCOG (2015). C-Obs 14: Categorisation of urgency for caesarean section*
3. *RCOG (2010) Good Practice No. 11: Classification of urgency of caesarean section – A continuum of risk*
4. *O&G Magazine (2017) "Crash caesarean" by Matthew Sleeman*